

We claim:

1. A thermal transfer ribbon comprised of a flexible substrate and, disposed above said substrate, a frosting ink layer, wherein said frosting ink layer is present at a coating weight of from about 0.25 to about 15 grams per square meter and is comprised of from about 15 to about 94.5 weight percent of a solid, volatilizable carbonaceous binder, from about 5 to about 75 weight percent of a film-forming glass flux, and at least about 0.1 weight percent of opacifying agent, and wherein:

- (a) said solid, volatilizable carbonaceous binder, after it has been heated at a temperature greater than 500 degrees Centigrade for at least 10 minutes in an atmosphere containing at least about 15 volume percent of oxygen, is substantially volatilized such that less than about 25 weight percent of said solid volatilizable carbonaceous binder remains as a solid phase;
- (b) said film-forming glass flux has a melting temperature of greater than about 550 degrees Centigrade;
- (c) said opacifying agent has a particle size distribution such that substantially all of its particles are smaller than 20 microns;
- (d) said opacifying agent has a first refractive index, and such film-forming glass flux has a second refractive index, such that the difference between said first refractive index and said second refractive index is at least about 0.1;
- (e) said opacifying agent has a first melting point, and said film-forming glass flux has a second melting point, such that said first melting point exceeds said second melting point by at least about 50 degrees Centigrade;

- (f) said opacifying agent has a first concentration in said frosting ink layer, said film-forming glass flux has a second concentration in said frosting ink layer, such that the ratio of said first concentration to said second concentration is no greater than about 1.25.
2. The thermal transfer ribbon as recited in claim 1, wherein said flexible substrate is a synthetic polymeric material.
  3. The thermal transfer ribbon as recited in claim 2, wherein said synthetic polymeric material is poly(ethylene terephthalate).
  4. The thermal transfer ribbon as recited in claim 3, wherein said poly (ethylene terephthalate) has a thickness of from about 2.5 to about 15 microns.
  5. The thermal transfer ribbon as recited in claim 3, wherein said solid, volatilizable carbonaceous binder is present in said frosting ink layer at a concentration of from about 20 to about 40 weight percent.
  6. The thermal transfer ribbon as recited in claim 5, wherein said film-forming glass flux is present in said frosting ink layer at a concentration of from about 35 to about 75 weight percent.
  7. The thermal transfer ribbon as recited in claim 6, wherein said opacifying agent is present in said frosting ink layer at a concentration of from about 10 to about 35 weight percent.
  8. The thermal transfer ribbon as recited in claim 7, wherein the difference between said first refractive index and said second refractive index is at least about 0.2.
  9. The thermal transfer ribbon as recited in claim 8, wherein said first melting point exceeds said second melting point by at least about 100 degrees Centigrade.
  10. The thermal transfer ribbon as recited in claim 9, wherein said opacifying agent has a refractive index of at least about 1.7.
  11. The thermal transfer ribbon as recited in claim 10, wherein said frosting ink layer is

comprised of from about 1 to about 25 weight percent of platy inorganic particles with melting points greater than about 650 degrees Centigrade.

12. The thermal transfer ribbon as recited in claim 11, wherein said frosting ink layer is comprised of from about 5 to about 15 weight percent of said platy inorganic particles.

13. The thermal transfer ribbon as recited in claim 12, wherein said platy inorganic particles have a particle size distribution such that substantially all of its particles are smaller than about 20 microns.

14. The thermal transfer ribbon as recited in claim 10, wherein said frosting ink layer is comprised of from about 0.5 to about 25 weight percent of colorant.

15. The thermal transfer ribbon as recited in claim 14, wherein said colorant is metal oxide colorant.

16. The thermal transfer ribbon as recited in claim 1, wherein said frosting ink layer is present at a coating weight of from about 4 to about 10 grams per square meter.

17. The thermal transfer ribbon as recited in claim 4, wherein said poly (ethylene terephthalate) substrate has a thickness of from about 3 to about 6 microns.

18. The thermal transfer ribbon as recited in claim 3, wherein an undercoat layer is disposed above said poly(ethylene terephthalate) flexible substrate and between said poly(ethylene terephthalate) flexible substrate and said frosting ink layer.

19. The thermal transfer ribbon as recited in claim 18, wherein said undercoat layer is comprised of at least about 75 weight percent of wax and thermoplastic resin.

20. The thermal transfer ribbon as recited in claim 19, wherein a backcoat layer is disposed backside said poly(ethylene terephthalate) flexible substrate.

21. The thermal transfer ribbon as recited in claim 20, wherein said backcoat layer is comprised

of a resin.

22. The thermal transfer ribbon as recited in claim 20, wherein a first covercoat layer is disposed above said undercoat layer.

23. The thermal transfer ribbon as recited in claim 22, wherein said first covercoat layer is comprised of at least about 25 weight percent of thermoplastic binder and less than about 5 weight percent of glass frit.

24. The thermal transfer ribbon as recited in claim 23, wherein said first covercoat layer is disposed beneath said frosting ink layer.

25. The thermal transfer ribbon as recited in claim 24, wherein a second covercoat layer is disposed above said frosting ink layer.

26. The thermal transfer ribbon as recited in claim 25, wherein said second covercoat layer is comprised of at least about 25 weight percent of thermoplastic binder and less than about 5 weight percent of glass frit.